IN THE CLAIMS:

1. (Previously Presented) An apparatus for non-destructive hyperthermia therapies, the apparatus comprising:

generating means for generating radio-frequency electromagnetic radiation, connectable to application means for the application of said radiation to a skin portion of a human body, said application means comprising an active electrode and a reference electrode, said active electrode having a skin contact surface, said active electrode being provided with a sensor means for the detection of skin temperature of the skin portion, said sensor means including at least a sensor incorporated in said active electrode, wherein said active electrode is a plate shaped electrode.

2 – 3 (Canceled)

4. (Previously Presented) An apparatus according to claim 1, wherein said sensor means for the detection of the skin's temperature comprises a sensor which can be connected to the apparatus and removably associated with the active electrode, said active electrode having a seat complementarily matching a corresponding connector of the sensor.

5. (Previously Presented) An apparatus according to claim 1, wherein said sensor means for the detection of the skin's temperature are connected to a control circuit connectable to and acting on said generating means for generating radio-frequency radiation.

6. (Canceled)

7. (Previously Presented) An apparatus according to claim 1, wherein structure of the active electrode is complementary shaped with respect to the skin portion of the human body region of the patient to be treated.

8. (Previously Presented) An apparatus according to claim 1, wherein said reference electrode has dimensions larger than those of the active electrode.

9. (Previously Presented) An apparatus according to claim 1, further comprising additional active electrodes connected to a switch device able to connect in sequence said active electrodes to said generating means for generating radio-frequency radiation.

10. (Currently Amended) An apparatus according to claim 1, further comprising means for adjusting the temperature reached on the skin and able to vary the ~~and the~~ output power in order to keep skin temperature at a preset value.

11. (Previously Presented) An apparatus according to claim 1, wherein further comprising measuring means for measuring the output power and the impedance in correspondence of the application means.

12. (Previously Presented) An apparatus according to claim 1, wherein further comprising means to preset the duration of the treatment.

13. (Previously Presented) An apparatus according to claim 1, further comprising means for connection with an electronic processor.

14. (Currently Amended) An apparatus for non-destructive hyperthermia therapies, the apparatus comprising:

a generating means for generating radio-frequency electromagnetic radiation; and

an application means connected to said generating means for the application of said radiation to a skin portion of a human body, said application means comprising an active electrode and a reference electrode, said active electrode being provided with a skin temperature sensor means for the detection of skin temperature of the skin portion, said sensor means including at least a sensor part directly incorporated in or directly connected to said active electrode, said active electrode being a plate shaped electrode, said plate shaped electrode having a skin contacting means for directly engaging the skin portion of the human body such that said radio-frequency electromagnetic radiation is delivered to the skin portion via said skin contacting means;

a control means for controlling an amount of radio-frequency electromagnetic radiation generated via said generating means based on the skin temperature of the skin portion detected via said skin temperature sensor.

15. (New) An apparatus for non-destructive hyperthermia therapies, the apparatus comprising:

a generating means for generating radio-frequency electromagnetic radiation;

an application means coupled to said generating means for applying said radio-frequency electromagnetic radiation to a skin portion of a subject, said application means comprising an active electrode and a reference electrode, said active electrode having a skin contacting surface means for directly contacting the skin portion of the subject, said active electrode comprising a sensor means for detecting a skin temperature of the skin portion, said sensor means including at least one sensor detachably connected to said active electrode, said active electrode being a plate shaped electrode, said sensor having a sensor connector, said active electrode having a seat, said seat having a contour corresponding to a contour of said sensor connector, said sensor cooperating with said active electrode when said sensor is located at a spaced location from said active electrode.